

SAMPLE LESSON PLAN #1 (GRADES K-3)

PEOPLE USE NATURAL RESOURCES

METHOD:

Students will be able to trace objects to the category of natural resources from which they were made. They will identify some of the natural resources that people need in order to live.

MATERIALS:

For “Pre-Activity Questions” and “Part I, Making ‘Earth Pockets’ ”

- Piece of butcher paper on which to record a list for “Part I, Making ‘Earth Pockets’ ”
- Two paper plates for each student
- String or yarn (approximately two feet long) for each student
- Cards (e.g., index cards or cards made from pieces of cereal box cardboard)
- Scissors
- Crayons and other art supplies
- Stapler and staples

See following page for Part II materials.

TIME:

Preparation: 30 minutes

Activity: 60 minutes to implement

Closing the Loop, a program of the California Integrated Waste Management Board, offers classroom activities and lessons for grades K-6 that help students discover and nurture an environmental ethic and stewardship for natural resources.

For more information about this lesson and Closing the Loop, please contact:

Closing the Loop
California Integrated Waste Management Board
Office of Integrated Education
2929 East Willow Street
Long Beach, CA 90806
(562) 492-9347

BACKGROUND

Humans depend on natural resources for their survival. The following describes ways people depend on natural resources.

PLANTS — Humans breathe the oxygen that plants make. Humans use plants for food, clothing and in building materials. They also use wood to heat their homes. Humans use plants to beautify an area, to keep soil from eroding and to serve as windbreaks. Many medicines are derived from plants.

ANIMALS — Humans use animals for food and clothing and to learn from and to appreciate (for aesthetic purposes). The droppings of some domesticated animals are used as fertilizer. Humans also use animal products in medicines.

SOIL — Humans use soil to grow plants for food and to build roads and buildings. They also use soil in products, such as adobe bricks.

MINERALS — Humans use minerals to manufacture thousands of different items. Silica is used to make glass; bauxite is used to make aluminum; many minerals are used to make items, such as cars, computer parts and appliances.

AIR — Humans need clean air to breathe to stay alive.

WATER — Humans need clean water to drink to stay alive. Water is also used in the manufacturing process of most products. The water might become part of the product, be used to wash items or used to cool down machinery.

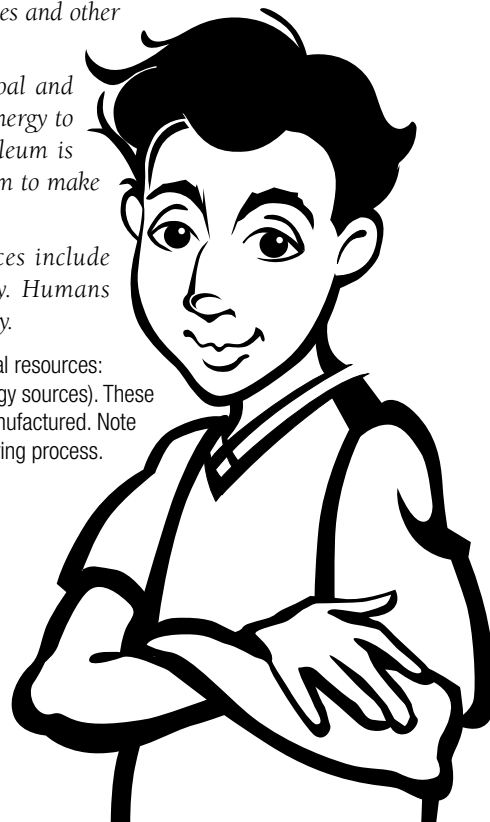
Energy Sources:

SUNLIGHT — Humans depend on sunlight, which provides energy for green plants to grow. Humans depend on green plants for food, clothing, fuel and building materials. They also need sunlight to power the water cycle so they can have fresh water to drink and to use for other purposes. Humans use solar power to generate electricity and to heat water, homes and other buildings.

FOSSIL FUELS — Fossil fuels include crude oil, coal and natural gas. Humans use fossil fuels as a source of energy to generate electricity and to move machines. Petroleum is manufactured from crude oil. Humans use petroleum to make a variety of products, such as plastics.

OTHER ENERGY SOURCES — Other energy sources include wind, hydropower, geothermal, and tidal energy. Humans usually use these energy sources to generate electricity.

Note: In this lesson we will use only four categories of natural resources: plants, animals, minerals, fossil fuels (a subcategory of energy sources). These are the natural resources from which most products are manufactured. Note that air and water are almost always used in the manufacturing process.



LESSON

People use natural resources to live and to make things.

OVERVIEW

In this lesson students will:

- **Make "Earth Pockets"** using paper plates in which the students place a string of illustrations and words that show the transformation of a natural resource into a product.
- **Work in groups to make mobiles** that represent the kinds of natural resources humans need in order to live.
- **Classify an item** based on the natural resource from which it was made.
- **Make a collage** of items made from a specific natural resource.

PREPARATION

Note: "Part I" could be completed with students in kindergarten and grade one; and "Part I" and "Part II," with students in grades two and three.

1. Read the "Background" information on page 3.
2. Make an "Earth Pocket."

Tape one end of the string or yarn to the center of the plate.

Staple the two paper plates together, leaving a 4-inch opening to make a pocket (See illustration below).

Tape or staple the other end of the string or yarn (approximately two feet long) to an illustration of a pencil on a card (e.g., cardboard from a cereal box). This card should be large enough not to fall into the pocket.

Note: It is recommended that you make cards out of used products, such as cereal boxes, to model conserving natural resources.

Further down the string, attach a card with an illustration of a piece of wood and the word "wood." This and all other cards should be small enough to fall easily into the pocket.

Attach the illustration and the word "plants."

Place the cards and attached string inside the pocket, leaving the pencil illustration sticking out of the pocket.

PRE-ACTIVITY QUESTIONS

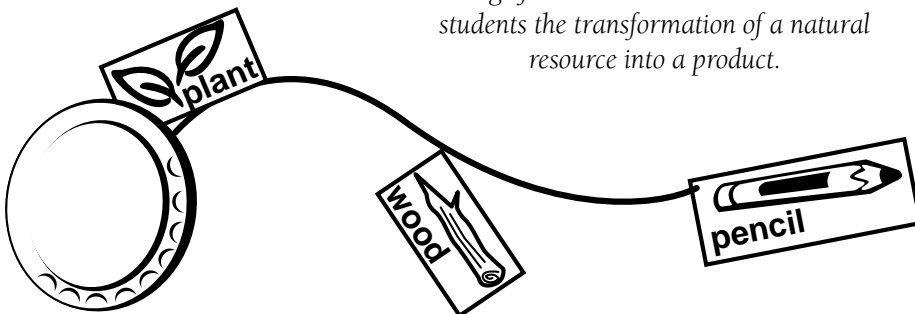
Ask students: "What things (products) do people make out of natural resources?"

List the names of some products on a piece of butcher paper and post the list in the classroom.

Tell students that they will be adding to this list during this lesson.

Continues on next page. ►

"Earth Pockets" use paper plates and a string of illustrations and words to show students the transformation of a natural resource into a product.



STANDARDS

Correlations to California's Content Standards, Grades K-12

SCIENCE

GRADE K

Investigation and Experimentation:

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept. . . students will. . . communicate observations orally and in drawings. 4e

GRADE 2

Earth Sciences: Earth is made of different kinds of materials that have distinct properties and provide resources for human activities. 3

SOCIAL SCIENCE

GRADE K

Learning and Working Now and Long Ago:

Students demonstrate an understanding that being a good citizen involves acting in certain ways. K.1

Frameworks and Benchmarks for Science Literacy

Humans use air, fresh water, soil, minerals, fossil fuels, and other sources of energy that come from the Earth. (Science Framework, page 97)

Most living things need water, food, and air. (Benchmarks for Science Literacy, page 111)

In order to participate effectively in society, students need to: Develop personal skills. . . group interaction skills (and). . . social and political participation skills. (History–Social Science Framework, page 24)

Students create original artwork based on personal experiences or responses. (Visual and Performing Arts Framework; Goal 4, page 101)

SCIENTIFIC THINKING PROCESSES

Observing, communicating, comparing, ordering, classifying

SAMPLE LESSON PLAN #1 (GRADES K-3) CONTINUED

PEOPLE USE NATURAL RESOURCES

MATERIALS:

For “Part II, Making a Mobile of the Natural Resources We Need in Order to Live,” you will need:

- Cardboard from boxes
- String or yarn
- Hole punch (a hand-held single-hole punch works best)
- Tape
- Cards (e.g., index cards or cards made from pieces of cereal box cardboard)
- Scissors
- Crayons and other art supplies

PROCEDURE

PART I, MAKING “EARTH POCKETS”

Note: The directions for making an “Earth Pocket” may need to be simplified for younger students.

- A. Show students the “Earth Pocket” (that you made in “Preparation” #2), making certain the card with the pencil drawing is sticking out of the pocket.

Ask students what the yellow part of the pencil is made from. As they say wood (and possibly lead), pull out the string to the card with the “wood” sign and illustration.

Ask where wood comes from. When students say trees, ask to which category of natural resources trees belong. They are plants. Pull out the card with plants drawn on it.

- B. Brainstorming with students, make a list of things made from natural resources that they use every day. Write these on butcher paper below the list (started at the beginning of the lesson).

- C. Select one item from the list of things used every day.

With the class, prepare an illustration of the item on a card. Then connect the card with string to an illustration of what the item is made from, down to the category of natural resources from which the item was made.

Place the cards and string inside the “Earth Pocket,” with the item sticking out.

Slowly pull out the string and the natural resource attached.

- D. Ask students to work individually and to select another item from the list of things used every day. They should then list the steps (or sources) from the natural resource to the item. Some examples include:

Book (paper—pulp—plant)
Paper (pulp—plant)
Crayon (wax—crude oil—fossil fuel)
Paper clip (steel—rock—mineral)

Milk (cow—animal)
Sweater (wool—sheep—animal)
Plastic bag (crude oil—fossil fuel)
Glass (sand—mineral)

Note: For younger students, consider having groups of five students make one “Earth Pocket.” Each student can make one part.

- E. Tell students that they will be making their own “Earth Pockets.”

Distribute two paper plates to each student.

Have students color a picture of the Earth on the bottom of each paper plate (which will become the outside of the pocket).

Help students place the two paper plates together (with the illustrated bottom of the plate on the outside) and staple them together (approximately five staples), leaving an opening of about four inches on top.

- F. Allow students to share their “Earth Pockets” with a partner or in a small group. Each student can pull out the parts slowly as other students guess what is connected to the object all the way to the natural resource from which it was made. Once students have made their presentations, they can take their “Earth Pockets” home to share with their families.

PART II, MAKING A MOBILE OF THE NATURAL RESOURCES WE NEED IN ORDER TO LIVE

- A. Discuss with students which of the Earth’s natural resources are needed by humans in order to live and how each of the natural resources will be used by humans. For example: water (to drink), air (to breathe), plants and animals (for food and clothing), minerals (from which to make things), soil (in which to grow food), energy sources (for electricity), and fossil fuels (for fuel and as a substance to make things).
- B. Help students make a mobile that shows different natural resources that people need.

- Separate students into small groups.
- Provide a piece of cardboard, yarn, cards, and art supplies.
- Assist students in making a mobile showing different natural resources hanging from strings from a piece of cardboard.

Note: For younger students, make one mobile as a class. Have several groups draw, label and color various natural resources. Have another group make the body of the mobile out of cardboard and punch holes in a row on the bottom to hang pictures of natural resources. Then the group members should write "Natural Resources That Humans Need" on the body of the mobile. The last group can attach the strings to the body of the mobile.

DISCUSSION/QUESTIONS

A. Discuss with students:

Why are natural resources important?
They provide us with things we need in order to live.

How do people use natural resources?
For making things; for producing energy; for providing the water, food and shelter they need in order to live.

Can there be shortages of natural resources for people to use? *Yes, if we use a lot of them.*

- B. Review the list, created at the beginning of this lesson, regarding things people make from natural resources and things students use every day. Ask students if they agree with the entire list. Do they want to add or delete any items? If so, ask them to explain why.

- C. List the following natural resources on the chalkboard or on a piece of butcher paper: plants, animals, minerals, fossil fuels. Ask students: "How can people make certain the natural resources they need, but that might be in short supply, will be available for many years to come?"

Plants: *e.g., reuse and recycle items made from wood; plant more plants.*

Animals: *e.g., provide places for them to live.*

Minerals: *e.g., take care of things so they will last a long time; reuse and recycle items.*

Fossil fuels: *e.g., conserve them, don't waste them; recycle items made from petroleum.*

APPLICATION

- A. As a class, select a toy and trace its creation to a natural resource category.
- B. Develop a guessing game with clues that will lead students to identify an object in the classroom. For example, tell students, "I am thinking of an item that is made from plants."
- C. Show students the "Earth Pocket" you made in "Preparation Step 2": Pencil — Wood — Plants.

- D. Ask what natural resources the plants need.

Have students help you make signs and illustrations for "Soil," "Water," "Air" and "Sunlight."

- E. Cut the plant card from the "Earth Pocket." Add four pieces of string to the "Plants." Hang on the strings the signs and illustrations of the natural resources the plants need in order to live. (See illustration.) The string can be stapled or taped on.

Based on what they just did and saw, ask students to explain additional ways people depend on natural resources. *We depend on natural resources that plants need, because we depend on plants.*

- F. Ask students to circle (on the list developed in "Discussion/Questions" section "B") those ideas they can use to conserve natural resources.

